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ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE ENDOTHELIAL LINING OF THE ANTERIOR CHAMBER IN HEALTH AND DISEASE.

[With Micro-Photographs.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONTINUED FROM APRIL NUMBER.]

The ligamentum pectinatum, the tendinous attachment of the ciliary muscle and some of the corneo-scleral tissue together form a reticular, almost spongy, tissue which has the shape of a prismatic ring lying around the periphery of the anterior chamber and in front of the root of the iris. In meridional sections it appears more or less triangular, the base of the triangle lying backwards, the apex at the periphery of Descemet's membrane. Its reticular arrangement is well shown in Fig. 5 of the April number of this Journal.

Its outer side forms the inner wall of what is termed Schlemm's canal or Leber's venous plexus. This latter, however, lies usually nearer the base than the apex of the triangle. (See also Fig. 5, April number).

The fact that, like Waldeyer and others, I had never found blood in the canal, had prompted me to side with those who, contrary to Leber, considered Schlemm's canal to be a lymphatic canal and not a venous one. I must now correct this

former statement, as I have in a number of cases seen blood contained in the canal and believe now in the correctness of Leber's view, although we mostly find this canal empty after death. It evidently can with propriety be compared to the meningeal sinuses. It is lined with a single layer of flat endothelial cells.

Whether this venous sinus is in open communication with the anterior chamber or not, is a question which has been frequently discussed and which some have sought to settle by experiment on the living or dead eye. Very recently Leber made a series of such experiments in conjunction with Bentzen and reported them in *Graefe's Archives*, Vol. XLI, Part I. He considers, based on the results obtained in these experiments, that the question is now definitely settled in the negative and that, while filtration of the fluids takes place from the anterior chamber into the venous sinus through this tissue, no open communication between the two exists.

I hardly believe, that, as ingeniously as these experiments were performed, we can take their results as definitive, nor can, in my humble opinion, this question be solely settled by experiment.

Curiously enough in the very same number of *Graefe's Archives*, G. Gutman reports the results of his investigations concerning the same question and made in Waldeyer's laboratory, and reaches almost opposite results. He says "and I see not the slightest obstacle to the view, that * * * from the anterior chamber of the eye fluids and even formed elements can enter through the spaces in the reticular tissue into the inner wall of Schlemm's sinus and can, when there is sufficient tension of the endothelial membrane, pass through the intercellular stomata of the endothelium and with a sufficient vis a tergo even enter into Schlemm's sinus itself and from there be carried off by the scleral and conjunctival veins."

It seems to me that the microscope has to speak the last word in this discussion and not the experiment.

I have quite frequently seen in meridional sections of these parts short, widely open passages from the reticular tissue into Schlemm's sinus, so often that their occurrence can not be looked upon as something accidental. To be sure, while I found them in some sections I did not find them in others of the same eye and their number does not seem to be

very large. Sometimes, however, there are several in one and the same section.

In Fig. 5 (April number) there is such an open channel in the upper angle of Schlemm's sinus which, however, in the photographic reproduction is not very easily visible. However, in Fig. 1 (this number), I have had a section reproduced in which several such larger canals, like infundibula, are seen to open into the inner wall of Schlemm's sinus. Moreover, a number of leucocytes are seen to enter through them into Schlemm's sinus and some are seen lying within it. It seems to me, that pictures like this can not possibly leave any doubt as to the existence of open canals which lead from the reticular tissue into Schlemm's sinus.

This part is usually called the filtration angle of the eye and the question at issue turns around this term filtration, which Leber thinks he is forced to uphold as the result of his experiments.

If this should be true, then we must consider these short open channels as the channels through which the previously filtered fluids finally reach Schlemm's sinus. Yet, as I have frequently seen large amounts of pigment and cellular débris being carried through the meshes of this reticular tissue into Schlemm's sinus, I do not think, that we can consider the process one of simple filtration.

As this paper is not intended to go farther into this question and to branch off into the possibly mechanical causes of the symptom complex, called glaucoma, I only want to say something of the changes in this tissue regardless of their consequences for other parts of the eyeball.

When the fluids passing from the anterior chamber through this reticular tissue into Schlemm's sinus contain larger quantities of cells (pigmented or unpigmented) and cellular débris, these solid contents are held within the meshes and soon, new ones being added, they choke the interstices and openings between the fibres. When this choked-up condition can not be relieved by the current of the fluids, it leads to a process of condensation or solidification of the meshwork. Thus, after some time we find the layers of fibres agglutinated to each other and the reticular tissue which projected inwards to some extend in its sweep toward the root of the iris, is now changed to a solid tissue, little differing from the corneo-scleral tissue,

or not at all, and no longer projecting inwards. All this while Schlemm's sinus may have remained patent and apparently unaltered, later on, however, it is, as a rule, found to be obliterated, also.

This consolidation of the reticular tissue alone must of a necessity bring the root of the iris closer to the corneo-scleral tissue and we frequently may see in such cases that the root of the iris is pressed against the region of the former ligamentum pectinatum. At first the two tissues lie loosely in touch (Fig. 2), later on a firmer union may and does often take place. In this case, however, no intervening newly-formed tissue can, as a rule, be demonstrated.

I have been unable to decide whether this consolidation of the meshes of the reticular tissue and the agglutination of its layers is due to the proliferation of the endothelial cells of the ligamentum pectinatum, or not. However, from analogy, it seems to me the more probable process, although cells immigrated into the meshwork from the anterior chamber may help in the production of this process of sclerosis.

In another series of cases we find the periphery of the iris held firmly to and even pulled towards the corneo-scleral tissue by a number of strings or bands of connective tissue which seem to be changed remnants of what was once the ligamentum pectinatum. (See Fig. 3).

The manner in which this condition comes about, is, I think, well explained by Figs. 4, 5 and 6. In Figs. 4 and 5 the iris angle is seen to be filled by a delicate fibrinous exudation which contains a number of round and short spindle cells. This exudation has also penetrated into the meshes of the ligamentum pectinatum. Fig. 6 shows the same condition from yet another eye and photographed with a lower magnifying power. Here such an exudation has filled the iris angle to a considerably larger extent and reaches as far forward as the periphery of Descemet's membrane. In this figure it is also well seen how, after an organization of the exudative material has taken place, this new tissue, as fine as it is (probably with the help of the vis a tergo), begins to pull the periphery of the iris towards the corneo-scleral tissue.

In the organization of this tissue both the endothelium of the ligamentum pectinatum and that of the anterior surface of the iris may be and probably are concerned.

From these specimens it seems to be apparent, that the obliteration of the iris angle is, in certain cases, surely not alone due to pressure from behind, but to a newformation of tissue in the iris angle which, when contracting, pulls the iris periphery towards the corneo-scleral tissue and when it shrinks further leads to a more or less firm union between the iris and corneo scleral tissue, in a similar manner as I have described it in *Knapp's Archives*, Vol. VI, Nos. 3 and 4.

[TO BE CONTINUED.]

DR. TH. REID'S PORTABLE OPHTHALMOMETER.

BY DR. R. MURDOCH, BALTIMORE, MD.

The portable ophthalmometer of Dr. Thomas Reid, of Glasgow, is convenient, compact, and most accurate, and it deserves a wide recognition by the profession. It measures corneal astigmatism, and, coincidently, the radius of each meridian, by the data obtained from the same observations. It is furnished for half the price of Javal's and Schiötz's instrument, by the maker, W. J. Hassard, of Glasgow, Scotland.

While its presentation by Lord Kelvin before the Royal Society of Great Britain, gave it a notable introduction to mathematicians, yet the limited circulation of the "Proceedings" prevented a wider and more rapid recognition in the branch of ophthalmology to which it is more peculiarly applicable. I have used it constantly since my visit to Dr. Reid last July, and find it as useful as he claimed it to be. Because of the completeness of the original paper, I quote from it as well as from a single sheet, now out of print, and from some notes furnished me by Dr. Reid while I was with him in his hospital.

The ophthalmometer gives simply and with great accuracy, the amount of corneal astigmatism, the direction of the axis,—whether in or out of rule,—and suggests, when the numbers run high or low, the presence of myopic or hypermetropic astigmatism as the case may be. Conical cornea and irregular astigmatism are likewise easily detected by it.

The instrument is an optical device for observing an en-

larged doubled image whose size varies with the curvature of the corneal surface, while the angular interval remains constant. This compact little ophthalmometer is only four inches long and an inch and a quarter broad at its widest part. Outwardly (see Fig. 1), it presents a rectangular central box, which

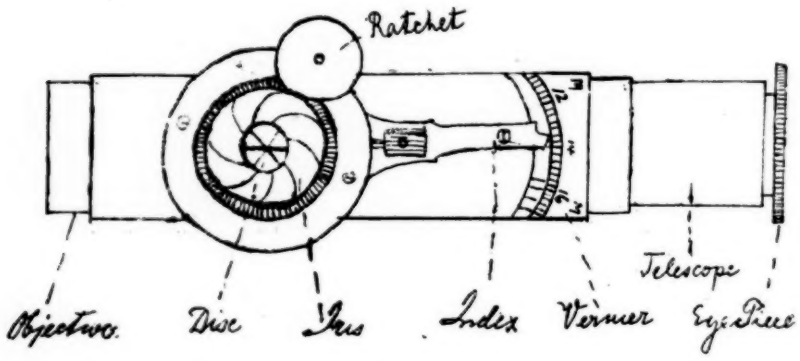


FIG. 1.

has a circular window, consisting of a ground glass disc, marked with radiating lines; and, within, a contracting iris, controlled by a ratchet. The movements of the contracting-iris are indicated by an index on a vernier, marked in mms. and diopters. Fig. 2 represents a section through the long axis

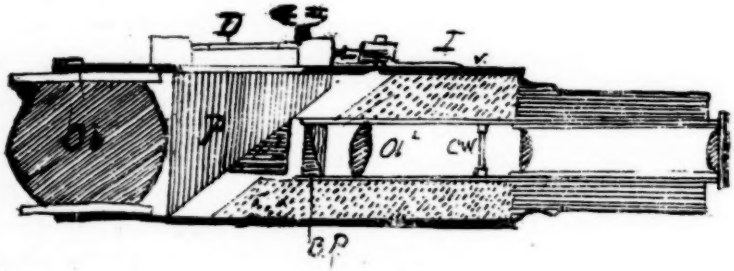


FIG. 2.

of the instrument, and shows that it contains an aplanatic lens of known focus, a rectangular prism, P, neutralized in the visual axis by a smaller prism, P^2. One side of the larger prism is adjacent to the lens, a circular disc, D, opposite the other side, and in the principal focus of the lens. The diameter of the disc, and, consequently, of its images thrown upon the

cornea, are regulated by the contracting diaphragm. The proximal end is a telescope with eye piece and objective, Ob^2. Adjacent to Ob^2 and in the visual axis is a double-image prism, BP. The focal length of the object glass Ob^2 is precisely the same as that of the aplanatic lens, Ob, and the cross-wires, CW, at its principal focus are viewed by a Ramsden eye piece.

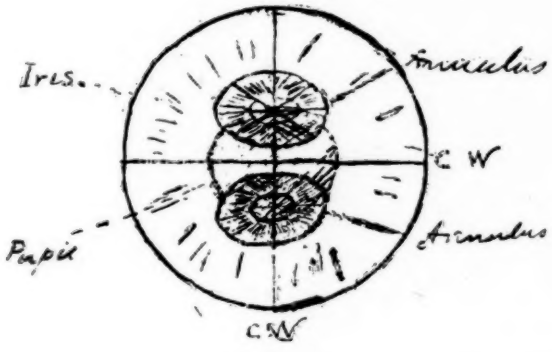


FIG. 3.

Before using the instrument, it is necessary and sufficient that the cross-wires should be distinctly seen at the *punctum remotum* of the observer, and it is also necessary that the object lens should be in focus with the ground glass circular disc. The adjusted instrument is held in the observer's left hand. The fingers should rest on the forehead of the patient, the disc being directed towards a window or gas jet at the right of the observer. The patient is directed to view the central point in the field of the instrument, which, of course, is the central point of the radiating lines of the refracted disc. The observer, at the same time, looks through the telescope, and obtains a brilliant, enlarged, doubled image of the same circular disc reflected at the corneal surface. It appears to him as two brilliant, glistening annuli, A (see Fig. 3), each averaging a quarter of an inch in diameter, and marked with the same radiating lines, and they should now by him be brought to the center of the cross-wires. If the annuli are not distinct, they can be made so by a "to-and-fro" movement.

Dr. Reid is accustomed to adjust the index to the 14 mm., or central mark on the vernier; then, while looking through

the instrument, he rotates the telescope so that the images stand at the minor axis. Should the edges not coincide, they may be made to do so by rotation of the ratchet with the free right hand, the images being enlarged. Having noted the point on the vernier where this occurs, the telescope is rotated through 90°. The now overlapping horizontal edges are in the same manner made to touch by diminishing the images. If there is a doubt as to the point of perfect contact, a double reading may be obtained by a rotation through 180°.

If one desires to know the length of corneal radius of the meridian he is investigating, he may obtain it by a simple mathematical formula. It is thus found that 15.25 mm., diameter of the disc as indicated on the vernier, is equal to 7 mm., corneal radius, a diameter of 14.25 mm. equals 7.5 mm., and one of 13.25 mm. equals 8 mm., etc.

In corneal astigmatism higher than .50 D., the elliptical form of the image suffices to show the position of least curvature. It is claimed that a difference of $^1/_4$ mm. in the size of the disc used, is equal to 1 D., and that quantities of $^1/_{20}$ mm. can be measured.

I predict a useful future for the instrument in the investigation of the astigmatism of the lower animals, and any one interested can obtain a supplementary double-image prism for this purpose. The field is a new one, and this easily-worked ophthalmometer meets precisely the want for such investigation.

DIABETIC RETINITIS.[1]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

Diabetes being a comparatively rare disease and retinal affections caused by it, or co-existing with it, being seen by oculists in extremely rare instances, I think that all of us, even at this day, should report all the cases which come under our own individual observation concerning this still debated and debatable subject.

I do not wish to enter here into the larger field of all the different eye affections which are known to be due to, or to

[1]Read before the Western Ophthalmological, Otological and Laryngological Society, Kansas City, Mo.

accompany, diabetes, but wish to confine my remarks to the so-called diabetic retinitis alone.

From a perusal of the more recent article on this subject by Hirschberg (*Centralbl. f. Augenheilk.*, 1891), and a most recent one by Dodd (*Knapp's Arch.*, 1895), the reader must feel, as if there could be no doubt left, as regards the development of certain typical forms of retinitis, not only in individuals suffering from diabetes, but as direct consequences of the general disease. It seems, moreover, as if these affections of the retina in diabetics were of comparatively frequent occurrence, surely much more so, than is generally known. Some authors, like Hirschberg, even state that in the milder and chronic cases, when the patient remains alive for ten or twelve years after the onset of the general disease, the retina always becomes affected.

Yet, in spite of these statements, the number of cases reported in literature is still so small, some sixty only, that more proof is desirable.

Definite statements and statistics are, of course, difficult to obtain, and can hardly be obtained by the oculists, as regards the proportionate development of retinal affections in diabetics. The few, which I can find on record, vary considerably. Seegen, in reporting 140 cases of diabetes, relates only two cases of diabetic retinitis. Lagrange states that of 52 diabetic individuals with eye affections seen at the Bordeaux Clinic, 17 had retinitis. Galezowski saw 27 cases of retinitis in 144 diabetics. My friend, Dr. L. Bremer, of St. Louis, who in the last few years has given especial time and study to the blood in diabetes, has had one case of eye affection among about sixty cases of diabetes and this very one happens to be a case of retinitis which I shall presently relate *in extenso*. His experience, that is that of a general practitioner, tallies well with the one of Seegen, just mentioned.

In spite of the firm position taken by Hirschberg, Dodd, and others, the question, whether there is really a diabetic retinitis or not, or whether there is a form or there are forms of retinitis which can and must be considered as characteristic of diabetes, is as yet rather unsettled.

Von Graefe did not believe in a diabetic retinitis. Leber, in collecting 19 cases and adding an observation of his own, says, that there is little in the symptoms of these cases of reti-

nitis which would permit us to consider them as characteristic of diabetes. Schweigger, De Wecker, Knies and quite a number of other observers are of the same opinion. The question can only be settled, if all the cases seen, are reported, until the number has grown large enough for general and convincing deductions.

As yet, it seems to me, that even the descriptions given by those observers who believe in a strictly typical diabetic retinitis, are not altogether convincing.

Moreover, in looking through the literature on diabetic retinitis, it seems to me, that we can not fail to be struck by the fact that, granted that the so-called typical form is in reality the typical one, most of the cases reported as diabetic retinitis are atypical ones.

Undoubtedly the most careful description and formulation of what he calls the typical form of diabetic retinitis (retinitis centralis punctata diabetica) is given by Hirschberg in his report of twenty-five cases of his own of diabetic retinal affections. It has been considered classical by others and been adopted by them.

His description of this typical form is about as follows:

The optic papilla is neither swollen, nor opaque. The retina in general is unaltered, the retinal bloodvessels present no visible pathological changes. In the neighborhood of and around the macula lutea are seen a varying number of small white, whitish-yellow, shining spots, dots and dashes.

While some authors assert, that these spots assume an arrangement, like the so-called star-figure around the macula, which is considered to be characteristic of albuminuric retinitis, and in some cases even to a more perfect degree than is usually seen in albuminuric retinitis,—others (Schoebl) claim that these irregularly arranged spots never form the characteristic star-figure.

The shape of the several spots varies considerably in general and in the individual case. They are round or oval or like stripes and are said to show no tendency to confluence.

Aside from this larger aggregation of white spots in the macular region, there are usually a number of similar single spots or small groups of them distributed over the temporal area of the retina.

These spots are said to remain unchanged for years. As

they are sometimes seen to cover a bloodvessel, they must be situated in the nerve-fibre layer. There are also no pigmentary changes.

Accompanying these spots there are usually a number, sometimes a large number, of small retinal hæmorrhages. They are generally punctiform and round, sometimes in stripes. Large ones are rare.

The bloodvessels appear perfectly normal.

This is, in short, the picture of the so-called typical form of diabetic retinitis.

The second form described by Hirschberg, as retinitis hæmorrhagica diabetica, is characterized by the appearance of retinal hæmorrhages. These may be punctiform or larger, (usually there is a large number of small ones) and they may break through the limitans interna retinæ and enter the vitreous body. In some cases hæmorrhagic glaucoma has been observed. When this does not occur, the continued presence of the hæmorrhages may secondarily lead to inflammatory symptoms in the retina, that is to a true hæmorrhagic retinitis. With these hæmorrhages no white spots seem to have been observed.

In these two forms, the typical and the hæmorrhagic form, Hirschberg adds a number of retinal and probably retino-choroidal affections, which he has observed in diabetics and he classes them as atypical cases. He did, however, not consider, that the dependance of these forms of retinal affection on the general diabetic diathesis was well established.

Neither Hirschberg nor his followers are blind to the fact, that their typical form of diabetic retinitis has a great resemblance to albuminuric retinitis. Yet none of them emphasize a form of retinitis as characteristic of diabetes, which is often described in literature and which, as Leber says, can not be distinguished from albuminuric retinitis, and I may add even from albuminuric neuroretinitis, as will be seen later on.

In the larger number of the cases of this nature, reported in literature, both sugar and albumen were found in the urine; yet there are quite a number of instances on record, in which it is especially stated that no trace of albumen could be found and yet the retinitis had all the appearances of an albuminuric one.

Thus a case of Jaeger (1856) which, however, is doubtful,

two of Desmarres (1858); and others by Galezowski, Jany, Noyes, Leber, Bull and Anderson.

It seems to me, the number of such cases is large enough to consider this form of retinitis or neuroretinitis as a typical diabetic form, if any of them can be called typical.

A large number of writers on this subject, whether they themselves have seen such cases or not, state that a diabetic retinitis, so clearly resembling an albuminuric one, is really always due to an albuminuria developed in the later stages of diabetes and is, therefore, either a mixed diabetico-albuminuric retinitis or simply an albuminuric retinitis developed in a diabetic individual.

The form I refer to, however, is a retinitis or neuroretinitis in no way distinguishable from an albuminuric one—yet without albuminuria.

Not wishing to encroach any further on your valuable time, I will now proceed to relate to you briefly the few cases of retinal affections in diabetic individuals which I have had occasion to observe, with the hope of drawing forth, perchance, some observations made by others.

CASE I.—About a year and a half ago, T. H. E., 56 years old, the patient of Dr. Bremer's before mentioned, consulted me on account of loss of vision. He had always been a nervous, restless individual, who in different capacities had roamed all over the world and, in consequence, had been exposed to the vicissitudes of all climates and social conditions. He had studied the ministry and medicine and knew his case well. For about five or six years he had been aware of his being diabetic. He stated that the amount of sugar in his urine sometimes rose to eight per cent., but that by means of enormous doses of antipyrine he could bring it down and hold it for a time at one and one-half or one per cent. Dr. Bremer assures me that oft repeated and careful examinations of this man's urine never revealed a trace of albumen.

Ten days before I saw the patient, he had noticed in the morning that almost suddenly large brown spots appeared before his eyes, which materially interfered with his vision. Being very highly myopic, he had at first thought, that his glasses needed cleaning, but cleaning them, had made no change. On the day on which he called on me, he had found himself unable to read even large type. In fact, his vision was reduced

so far, that he could with difficulty only manage to get along in the street.

The only point which interests us here, is the ophthalmoscopic picture which was very much the same in either eye.

The optic papilla was considerably swollen, snowy-white, looking something like a ball of cotton; its outlines were altogether invisible. From the papilla a dense white dimness of the retina tapered off towards the macula lutea. The arteries were thin, the veins broad, dark and somewhat tortuous, particularly in the lower part of the retina. A number of white and whitish-yellow round, semilunar and oval spots formed, below and somewhat removed from the macula lutea, about a third of a circle. There were a few more white spots on the temporal side farther removed from the macula. These spots seemed separated from each other by numerous punctiform hæmorrhages and larger ones in stripes. In the left eye such hæmorrhages reached a considerable distance towards the ora serrata.

Two weeks later, the patient thought he could see better, although I could not convince myself of the truth of this statement. Ophthalmologically I found the number of white spots increased, so that they now reached a little way above the macula on its outer side, especially in the left eye. Some of the spots had coalesced and formed larger patches. There were more and larger hæmorrhages, some in stripes lying close to veins.

I saw the patient once more about two weeks later, but found then that the conditions had remained about the same.

Had I not known from the note the patient brought me from his physician and from the patient's history, that he was a diabetic, I should most assuredly, from the ophthalmoscopic picture alone, have diagnosed albuminuria. As it was, many a careful examination of this man's urine, distributed over many months of observation, had at no time shown a trace of albumen to be present.

CASE II.—Some six years ago, Mrs M. E., 64 years old, who had for a prolonged time been complaining of a general malaise with polydypsia, without, however, consulting a physician, came to me with the statement, that for several months she had noticed that vision in her right eye was blurred, par-

ticularly in near work. For about two weeks something seemed to trouble her left eye also.

I found in her right eye around the macula and very close to it several clusters of exquisitely shiny, ivory-colored, round spots. The single spots were all severed from each other by apparently normal retinal tissue. In fact, the whole of the retina, and the optic papilla looked perfectly normal and there were no hæmorrhages of any kind anywhere to be seen. The retinal bloodvessels showed no pathological changes.

In the left eye the only pathological symptom found, was one solitary round, shiny, white spot on the inner side of and close to the macula lutea.

An examination of her urine showed a considerable amout of sugar, perhaps, between three and four per cent.

I had no other opportunity to see this patient.

CASE III.—Mr. M. H., 68 years old, consulted me on account of an almost sudden failure of vision in his left eye. He had arterial sclerosis and had been under treatment for diabetes for some months.

On examination I found the retina in his left eye sprinkled almost uniformly with innumerable punctiform, I might say, miliary hæmorrhages. These hæmorrhages reached as far forward towards the ora serrata, as it was possible to see; they were, perhaps, a little more numerous in the neighborhood of the macula lutea.

In the right eye I found a few similar hæmorrhages, located in the most peripheral parts of the retina, which explained, why they did not interfere with his vision in that eye.

His physician stated later on to me that the amount of sugar found in his urine was very large.

The prognosis which I gave being a very dark one with a prospect of sudden death from cerebral apoplexy, was reason enough for my never seeing the case again. Unfortunately, my prediction came true about a month later when the patient succumbed to cerebral apoplexy.

These are the only cases, as far as I remember, which I have personally observed, of retinal affections seen in diabetic individuals.

Without going into further speculations I want to add to these, in a few words, a case which I saw but very recently in the practice of my clinical assistant, Dr. Jennings, and which I

consider to be of particular interest in connection with the subject under consideration.

The patient was a lady of no longer doubtful age whose vision in both eyes had been defective for a long time and had become more so of late.

The ophthalmoscope revealed in the first place the characteristic changes found in disseminate choroiditis. There were a considerable number of old atrophic patches with pigmented outlines near the macula lutea and farther toward the ora serrata. Between them and particularly in the peripheral parts were a similar number of recent yellowish white points of infiltration in the choroid in both eyes.

Aside from these, there was in the left eye an almost continuous ring around the macula lutea and some distance from it, which consisted of countless small white, shiny spots, some round, some oval, some forming lines or half-moons, the whole appearing very much as if white oil paint had been dashed against the retina. They were all separate from each other and seemed to have no tendency to coalesce. There were no hæmorrhages of any kind, the papilla was blushed as we see it in choroiditis, the retinal bloodvessels were apparently unaltered.

Repeated examinations of the urine failed to detect either sugar or albumen.

The appearance, just detailed, tallies excellently well with the description of Hirschberg's typical diabetic retinitis centralis punctata, except for the choroidal complication. However, the white patches were found in one eye only and there were no hæmorrhages. Nor can I tell, whether the white spots were due to former hæmorrhages.

The picture somewhat resembled, also, Fuchs' retinitis circinata.

THE TOTAL NUMBER OF CANDIDATES on whom the degree of Doctor of Medicine was conferred by the universities of the German Empire in the course of the academic year 1894–95 was 1102; of these 516 were conferred by Prussian universities and 586 by universities outside Prussia. The largest number of medical degrees (163) was conferred by the University of Berlin, next came Würzburg with 143, Munich being third, with 139.

CLINICAL MEMORANDA.

GUMMATA OF THE EYELIDS.

BY J. B. KEBER, M.D.,

PROFESSOR OF DISEASES OF THE SKIN, BEAUMONT HOSPITAL MEDICAL COLLEGE, ST. LOUIS, MO.

Sam H., colored, aged 39, widower, had an initial lesion about three years ago which was followed by a large pustular eruption over the whole body.

I saw the patient in consultation and suggested appropriate treatment. A few weeks later all symptoms had disappeared. I saw him again about a year later and found a recurrent large pustular eruption, grouped, and confined principally to the limbs.

He stated that he had neglected treatment for the past nine months, his physician, in the meantime, having left the city. I began a new course of treatment, but after two or three weeks he disappeared. In January, 1895, he returned to the Clinic, his condition being as follows: On various portions of the body are gummata concerning which we need say nothing beyond noting the fact. There are two gummata in the forehead in the median line. A very large one on the left temple and a particularly large one behind the right ear. The most interesting lesion, from an ophthalmological standpoint, is the gummatous involvement of the eyelids, both upper lids being affected, the ulceration also extending to the lower lid on the left side. Of the two, the involvement of the left lids is the most interesting (see illustration). When first seen the left eye was completely closed by the œdematous thickening of the lids. The eye itself was found to be normal. The gumma was represented by an ulceration occupying the outer canthus and the border of the upper and lower lids, about one quarter of an inch in width and three-quarters of an inch in length. When next seen, three days later, the œdema had completely subsided under treatment and the gumma was represented by an ulceration an eighth of an inch wide ex-

tending along the free borders of the lids, except at one point on the upper lid where the process had extended deeply, causing a marked defect so that the patient was unable to close the eye. This lagophthalmus gave rise to some anxiety, but in the healing process the lid borders in the region of the outer canthus grew together for a distance of a quarter of an inch. The aperture was decreased correspondingly and as a result, the patient is able to close the eye perfectly. Nothing

has been attempted in this history but a short description of an interesting case, but it may seem also as a suggestion of nature's method of curing a lagophthalmus. The further course of the case presented very severe symptoms, among which may be noted a malignant gumma of the pharynx which brought the patient to the verge of starvation. This serious complication was eventually overcome and the patient now enjoys, apparently, perfect health.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,
of St. Louis, Mo.

THE EXCRETORY ORIGIN OF CERTAIN FORMS OF IRITIS AND CYCLITIS. Sydney Stephenson, (*The Lancet*, February 29, 1896).

The practical surgeon knows that most cases of iritis and cyclitis are associated with definite constitutional disorders, such as syphilis, rheumatism, gonorrhœa, or tuberculosis. Whilst this fact is universally admitted few writers appear to have allowed themselves to speculate as to the why and wherefore of the connection. In the hope of bridging this gap in our knowledge an attempt is made to examine and apply a theory brought forward recently by Dr. David Walsh to account for the origin of certain forms of dermatitis. Walsh believes that certain inflammatory affections of the skin are due in the first place to local changes set up by the excretion of irritant substances circulating in the blood. In this way he endeavors to account for the eruptions met with in the exanthemata, in gout, rheumatism, syphilis, and other constitutional disorders, and for the rashes which now and then follow the employment of such drugs as iodine, bromine, copaiba, antitoxin and tuberculin. This hypothesis is supported by many facts. It is positively known that some organic and inorganic products when introduced into the blood may irritate one or several of the channels of exit from the body—for example, the bowel, kidney and skin. Thus the poison of scarlet fever, when eliminated by the skin or pharyngeal mucous membrane, gives rise to the characteristic eruption and sore throat, but when thrown off from the system by the kidneys causes nephritis.

Copaiba is usually eliminated from the body by the kidneys and mucous membrane of the lungs, but if for any reason the burden of excretion is shifted to the skin a measle like eruption will be the result. To put the matter shortly, he sug-

gests that these various eruptions take their point from acute or chronic excretory irritation of the skin. The irritant may be either in the shape of specific organisms or their products, of drugs, or of the chemical products of the faulty tissne changes.

We must next enquire whether we are justified in regarding the ciliary body as a secretory apparatus. The recent histological researches of Nicati upon animals, and of E. T Collins in man, have placed the secretory functions of the ciliary body almost beyond the range of controversy. Collins has shown that finger-like processes may be demonstrated with the microscope in bleached sections of the anterior part of the uveal tract, more especially at the junction of the pars-plicata and non-plicata.

These pyriform depressions have a central lumen are lined by epithelial cells, open towards the interior of the eyeball and are said to be present in great numbers. Collins claims that they are glands concerned in the elaboration of the aqueous humor and nutrient fluids of the lens and vitreous. In pursuance of this idea, he regards serous iritis as primarily due to catarrhal inflammation of these glands. Alt, whilst admitting, on the one hand, that small pigmented processes spring in comparatively large numbers from the outer surface of the uveal layer of the pars ciliaris retinæ, denies, upon the other, that they are of a glandular nature. According to him, they are "simply pegs of cells projecting outwards from the pigment epithelium layer," and never possess a central lumen such as Collins has described. Alt believes that the ciliary part of the retina and the pigmented epithelium together constitute one large uveal gland by which the aqueous humor is secreted.

The iris and the ciliary body are anatomically continuous, hence the causes of iritis are, with scarcely an exception, those of cyclitis also.

Syphilis is the commonest cause of irido-cyclitis. Most writers credit the venereal complaint with 50 per cent. of all cases. That estimate is too low, however, especially if the hereditary diseases be taken into account. The proportion probably lies nearer 60 per cent. Rheumatism or gonorrhœa is responsible for most of the other cases, and we shall not be wrong if we lay 30 per cent. to the score of those ailments.

The remaining 10 per cent. is due to various causes, of which tubercle, gout, malarial and other fevers are among the more important.

In glancing over the foregoing list one can scarcely fail to note that almost all the ailments named are intimately associated with, if not actually caused by, micro-organisms. Two propositions, then, seem to be clear—first, that most inflammatory affections of the iris and ciliary body are dependent upon a constitutional ailment; and, secondly, that a majority of those ailments are of a bacterial origin. The conclusion follows that most forms of irido-cyclitis result from the action of micro-organisms.

An attempt will next be made to show that the immediate cause of these inflammations is to be sought in the vicarious glandular excretion of microbes or their products circulating in the blood or other nutrient fluids of the body. The following, reported by Gillet de Grandmont, is a case in point.

That surgeon was consulted by a young man convalescent from typhoid fever. The patient, who was thin and weak, had albumin in the urine and a jaundiced hue of the skin. His left eye was affected with iritis; it showed numerous posterior synechiæ and hypopyon, and its vision was so impaired that fingers could be counted with difficulty only at the distance of one metre. Grandmont opened the anterior chamber of the inflamed eye and inoculated a tube of agar-agar with some of the pus.

Two days later he obtained a pure culture, which, when, examined with the microscope, was found to be made up of the bacilli described by Eberth as present in the spleen, glands, and Peyer's patches of those suffering from typhoid fever. A small quantity of this culture was next injected into the vitreous humor of a rabbit, which, when killed three weeks afterwards, was found to have numerous typhoid fever bacilli in the liver and intestines.

It is maintained by some authorities—Leber, for example—that tuberculous inflammations of the iris is always secondary to a tuberculous lesion in some other part of the body. We are bound to assume then, that the transference of organisms takes place by means of the blood, and that their presence in the eye is due to a process of excretion by the ciliary body. Tubercle bacilli have been found in the iris by many

observers, and Weinbaum has succeeded in setting up tuberculous irido-cyclitis by inoculating a rabbit with diseased material taken from the human eye. Micro-organisms have been found in iritis associated with leprosy, and there is no doubt but that they are present in other forms of iritis due to infective disease.

CONCLUSIONS.

1. Most inflammatory affections of the iris and ciliary body are the outcome of constitutional ailments, which are in turn due to microbic infection.

2. In certain forms of irido-cyclitis specific micro-organisms have been found in the contents of the anterior chamber.

3. There exist good grounds for believing the proximate cause of all cases of endogenous irido-cyclitis to be the excretion by the ciliary body of micro-organisms or their products.

4. Therefore, bacteriological examination of the aqueous humor might furnish a ready means of detecting an organism in those maladies thought to be of infectious nature, such as rheumatism. It might also lead to a correct conclusion as to the cause of doubtful cases of irido-cyclitis.

TUMOR OF THE BRAIN INVOLVING THE OCULAR NERVES.

CLARENCE R. DUFOUR, Phar.D., M.D., (*The Journal of the American Medical Association*, January 18, 1896).

Mrs. H., widow, age about 56 years, was referred to me at the Woman's Clinic, in the summer of 1894, on account of her eyes. Upon examination I found a complete paralysis of the muscles supplied by the third, fourth and sixth nerves, an exophthalmus and optic atrophy, all on the left side. I diagnosed the trouble as being in the brain, and so told the daughter who accompanied her. I could obtain no specific history. She had been operated upon some months previously for empyema of the left antrum, the opening being made in the cavity of the second molar tooth; there was free discharge drainage through the nostril when I saw her. I kept the antrum well washed out with sol. boric acid and gave her sat. sol. iodid of potassium, 10 gtt. three times daily, increasing one drop

daily, until she was taking 30 gtt. three times daily. Any attempt to increase this amount produced such constitutional disturbance that it could not be done. She was kept on this treatment until complete symptoms of iodism were manifested, when it was changed to $^1/_6$ gr. bichloride of mercury and 3 grs. potassium iodid three times daily, and continued for months with occasional intermissions of a few days. No result whatever from the treatment. About the middle of the summer she began to complain of intense pain in her head, which at first yielded to anodyne treatment but which soon became constant, and nothing but morphia would allay. About this time there began to be symptoms of loss of sensation on the side of the face and anæsthesia of the cornea, indicating that the first division of the fifth nerve was being implicated. This condition continued, with no abatement of symptoms; she had periods of hallucinations, and as her daughter was obliged to work away from home, and there being no one to leave the mother with, the latter was sent to the hospital. It was thought best to reopen the antrum so as to establish freer drainage; this was done, considerable pus escaping. It was then washed out with an antiseptic solution two or three times daily. An examination of the urine was made with results as follows: Amber in color, cloudy ppt., acid reaction; small amount of albumin, epithelial cells and pus were found. After operation on the antrum the pain in the head subsided for a few days but began again and continued with occasional periods of intermission. She was discharged from the hospital in the early part of November. Her condition gradually became worse, and her right eye began to show symptoms of incipient atrophy of the optic nerve and an external squint was manifested. She was able to go about until April, 1895, when she had to go to bed. She grew worse, her mind wandered and word deafness became manifest. On May 3, she died. On the following morning the skull was opened and the brain removed. It was put in a 2% solution of formalin, and a few days later the examination revealed the following condition: Gumma of dura mater in the anterior part of the left middle fossa, this involved by extension the left anterior temporo-sphenoidal lobe; the growth surrounded the internal carotid artery, exerting pressure on the cavernous sinus and involved the left optic nerve at the commissural origin; con-

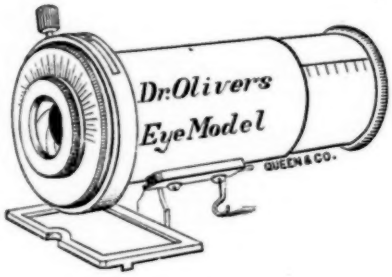
siderable œdema of the left anterior sphenoidal lobe. A second and smaller gumma involved that part of the brain mass which constitutes the left olfactory convolution; the third and smallest lay in the angle at the right optic commissure. The bone around the first growth had lost its compact covering and had become porous; the dura was very adherent to the bone. The ocular conditions during life were cleared up, I think, satisfactorily by the findings at the post-mortem. The cavernous sinus receives anteriorly the ophthalmic vein through the sphenoidal fissure, and on its anterior walls is found the internal carotid artery and the sixth nerve; on its outer wall are the third, fourth and the first division of the fifth nerve.

The pressure exerted by the tumor upon the sinus explains the paralysis of the muscles and the anæsthesia of the cornea, etc., this pressure, together with pressure upon the ophthalmic vein, accounts for the exophthalmus by preventing the return flow of blood through the angular and ophthalmic veins into the cavernous sinus. The pressure also being exerted upon the optic nerve in front of the chiasm, was the cause of the optic atrophy of left eye. The œdema of the temporo-sphenoidal lobe, would, I think, satisfactorily explain the word-deafness. The atrophy of the right eye was due to the smallest tumor in the angle of the right optic commissure. The cause of the external strabismus is somewhat obscure, as there was no implication of the third nerve on that side; my opinion is that there was pressure exerted upon this nerve in the sphenoidal fissure, probably as it passed through it.

AN ARTIFICIAL EYE INTENDED FOR THE STUDY OF OPHTHALMOSCOPY AND THE OBJECTIVE DETERMINATION OF AMETROPIA. CHARLES A. OLIVER, M.D., (*New York Medical Journal*).

As far as practicable, this model has been constructed in imitation of the human eye. As shown in the sketch, it is composed of two telescopic brass tubes of about four and a half centimeters in length and two and a half centimeters in diameter each. These are so made as to allow the smaller one to slide into the other. At the far extremity of the anterior

and larger tube, there is an adjustable cylinder-lens that can be made of any desired strength. Just inside of the lens, in the tube, there is an accurately centered iris-diaphragm. More deeply situated in the tube there is a carefully ground bi-convex lens of twenty diopters' strength which represents the main focusing apparatus of the contrivance. The smaller tube has a double index running the greater part of its length upon its upper face. The indices starting from zero, run sequentially backwards to six along an "M" line, and forward to the same amount on an "H" line. To the back face of the tube, there is an arrangement by which an adjustable flat disc can be screwed into position. This disc contains a colored representation of the normal fundus-oculi engraved upon enameled paper.



Starting with a focal distance of five centimeters, which is marked upon the smaller tube as zero, emmetropia is reached. By gradually withdrawing the smaller tube, the exact equivalents of axial myopia are obtained. By slowiy pushing the smaller tube into the larger one from the point of registry of emmetropia, increasing amounts of axial hypermetropia are gotten. If it be desired to study astigmatism, the cap containing the cylindrical lens can be adjusted to the face of the large tube.

The appearance of the normal eye ground is given, and the student is thus enabled at a moments notice to have a proper ophthalmoscopic representation under almost the same conditions as when they are studied in the living subject.

Practically, in all of these procedures, the method is the same as should be pursued were the artificial eye a living organ. The contrivance is manufactured by Queen & Co., of Philadelphia.

CASE OF CHOROIDAL HÆMORRHAGE FOLLOWING EXTRACTION. ENUCLEATION A WEEK LATER OWING TO SEVERE PAIN. J. A. SPALDING, M.D., (*Archives of Ophthalmology*, Vol. XXV, No. 1).

Three or your years ago I operated successfully by simple extraction on the right eye of a healthy and robust country patient of 64 years. The primary result was very good. Later on, the capsule shrivelled, but was divided with good result. In 1894, he consulted me for blindness of the left eye, and insisted on having the extraction performed. Physically he had grown very decrepit since I had seen him two years before. The left eye exhibited a very mature yellowish cataract. There was no abnormity in the function of the eye, perception of light was good, and field perfect, but I was inclined to think that the iris trembled as if the lens were slightly dislocated.

The eye being thoroughly sterilized, simple extraction was begun on January 10, 1895. Incision entirely in the cornea, and embracing nearly half of the circumference. After the incision was completed, the cornea collapsed as we often see in the aged. The speculum was then held wholly away from the globe by an assistant, but the lids were still kept well apart. The capsule was then divided with a T-shaped incision, and the lens gently and smoothly expelled. The speculum was then removed, whereupon the patient was observed to squeeze the lids together.

Some pain, but not much, was complained of. In a minute or two some fluid vitreous exuded from between the lids. On inspecting the globe a large bead of vitreous was seen lying between the lips of the incision. Then prolapse of iris ensued. This being replaced, it again came out of the eye. It another minute there was a gush of blood. The patient was raised in bed, and a compress bandage applied. Pain increasing, morphine was given. Hæmorrhage did not last long, and on the following day there was none. The globe remained painful, and in spite of sedatives grew worse day by day. The clots were removed from between the incision, but came again. Finally, one week after the extraction, the patient yielded to our often repeated proposal to have enucleation done, and it was done with relief to all the symptoms, including at one time delirium.

The hæmorrhage was macroscopically discovered to originate from the anterior portion of the choroid, directly behind the ciliary region.

It is my opinion that the hœmorrhage was due to relaxation of the suspensory ligament, permitting too rapid an extraction of the lens, as a result of which the degenerated vessels in the region of the incision gave way, with the usual result. I would call attention to the fact, that this case is nearly the only one which I am able to find in which successful extraction in the same patient has been followed with the accident in extraction on the second eye. For this reason it would seem probable that the marasmic condition of the patient must be held as the exciting cause.

THE SPIDER-CELLS OF THE OPTIC NERVE AND RETINA. Dr. Richard Greeff, Berlin, (*Archives of Ophthalmology*, Vol. XXV, No. 1).

Thanks to the introduction of new methods of examination, we have in recent years made a decided progress in the study of the histology of the nervous system. Golgi and Ehrlich have shown us methods by means of which we can demonstrate isolated cells, with their processes, in the midst of a labyrinth of other cells which remain unstained. The most serviceable method in this respect is the one devised by Golgi, which has been as successfully modified by Ramon y Cajal. This method, employed upon the optic nerve and retina, has demonstrated that these structures contain histological elements identical with those of the central nervous system—a fact which only serves to verify what the embryology of these parts teaches.

METHOD OF EXAMINATION.

Small pieces of the nerve taken from the body soon after death, are put into a solution of osmic acid 1%, 1 part; potassium bichromate, $3^1/_2$% or 1–2% solution of sodium or ammonium bichromate, 4 parts, when they are allowed to remain 12 to 48 hours. After drying them with filter paper, they are put into a 0.75% solution of nitrate of silver, for 12 hours or more. It requires considerable experience with the method to learn

just how long to keep the objects in the first solution, to get them impregnated to the best advantage. From the silver solution the pieces are put, after rinsing in water, into absolute alcohol for $^{3}/_{4}$ of an hour, thence into thin celloidin for five minutes, and fastened upon a cork; when, after a short time, they are ready to be cut into sections. If the first few sections contain no stained cells, we bring the objects back into the first solution and repeat the entire procedure. Although the cells are easier to stain in the optic nerve than in the retina, the process with them also requires considerable experience and patience.

The neuroglia cells which we find in the optic nerve are identical with those found in the brain. They take on a deep brown or black stain, while the surrounding tissue is of a delicate yellow. Cell-body and cell-prolongations are impregnated equally well, so that we are not able to detect a nucleus or the minute structure of the protoplasm. The picture they present under the microscope may be compared to a silhouette. In the optic nerve the spider-cells are most abundantly situated between the nerve-fibres, although some are found between the bundles of fibres. Their prolongations are not confined within the limits of a single bundle of nerve-fibres, but frequently pass from one to another. In the papilla the spider-cells become more like those described by Ramon y Cajal, in his examination of the retina; they are much smaller, irregular in shape, the prolongations being more numerous, shorter, and crowded together. The most of them pass forward to the surface of the papilla, and gradually pass over into the spider-cell form, as we find them in the retina.

In the retina we find the spider-cells in the nerve-fibre layer and ganglion layer, the processes, in the latter case, often extending into the inner molecular layer. I have little to add to what has been said of these cells by Cajal and Kallins. They lie in close apposition, especially near the papilla of the optic nerve. They vary considerably in shape, some being star-shaped, others round, oval, or triangular. Their shape changes to some extent with their location, those found near the membrana limitans being, as a rule, flat or triangular, with the broad side directed toward the membrane. Their prolongations are short, very delicate, and present in large

numbers. They are sometimes arranged in bundles, in which case a bundle emanates from a single pedicle. The prolongations have not, like those in the optic nerve, a tendency to disperse in all directions, but have a tendency to pass to the interior—that is, the ones emanating in layers of the nerve-fibres pass into the layer of ganglion cells, and those originating in that layer pass to the inner molecular layer.

Of late the neuroglia tissue is looked upon not only in the light of a supporting substance, but as having the *function of isolating the nerve fibres.* The prolongations of the neuroglia cells, interlacing, as they do, between the nerve-fibres and cells, prevents them from coming in direct contact, and may be compared to the insulating silk about electric wires. The ganglion cells thus are enabled to transmit impressions of light, received from the rods and cones through the nerve-fibres of the optic nerve, to the centres in the brain.

A CASE OF RETINAL HÆMORRHAGE. M. L. Foster, M.D., (*New York Medical Journal*, February 1, 1896).

During the present age of bicycling the following case may be of interest, as it illustrates one of the possible dangers of an immoderate degree of violent exercise. But I should not like to be understood to magnify this danger as one particularly likely to result from this form of sport.

A young man, 20 years of age, while "scorching" on his bicycle, suddenly noticed a mist over his left eye. This haziness persisted, and on the next day he consulted his family physician, by whose advice, a few days later, he came under my observation.

Vision $^{20}/_{cc}$. Ophthalmoscopic examination revealed a large hæmorrhage in the macular portion of the retina in process of absorption. A week later the effused blood had become about half absorbed and the vision seemed a little clearer. An examination of the heart and kidneys revealed no lesion of these organs, and I could detect nothing in the appearance of the remaining vessels of either retina, or from palpation of the radial and temporal arteries, to suggest a weakness in, or disease of, the vascular walls. There was no history of syphilis or any other constitutional disease which I could elicit.

ACCOMMODATION IN THE AMAUROTIC EYE. C. ZIMMERMANN, M.D., (*Archives of Ophthalmology*, Vol. XXV, No. 1).

Aside from its pathological interest, our case answered all requirements for deciding a physiological question, viz.: in regard to the equal impulse of accommodation in both eyes. Hess, Greeff, and others proved that in anisometropia the accommodation in both eyes is equal under all circumstances. Greeff found the same in a blind eye, the fellow of which had good vision.

In our case we had atrophy of one optic nerve, the eye itself, especially the ciliary nerves, being intact, with normal vision of the other eye.

By means of skiascopy it could be ascertained that accommodation at a distance of 25 c.m., *e. g.*, produced an additional myopia of 4.00 D. in the amaurotic as well as in the healthy eye. This shows that the impulse of accommodation is the same in both eyes, no matter whether or not there is any interest in binocular vision or in an equal muscular effort.

DR. JAMES FANNING NOYES died recently at Providence, Rhode Island, aged 78. He was one of the pioneer ophthalmologists in the northwest of the United States. He was born in 1817, and studied medicine at Harvard and afterwards at Jefferson Medical College, where he graduated. He practiced at Waterville, Maine, and later at Detroit, in the Medical College of which he was Professor of Ophthalmology. He contributed largely to medical literature, and was an active member of various medical and other societies.

THE HEIDELBERG OPHTHALMOLOGICAL SOCIETY will meet on August 5, 6, 7 and 8. Titles of papers to be read should be in the hands of Dr. W. Hess, Mainz, Germany, before August 3.

THE PROPOSITION TO MAKE THE GREEK LANGUAGE the international language for the natural sciences is being seriously discussed. It is earnestly advocated by Dr. Achilles Ross, of New York. Prof. Zehender supports the idea in his *Monatsblätter.*

SOCIETY PROCEEDINGS.

WESTERN OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

The organization meeting of the Western Ophthalmological, Otological and Laryngological Society was held at Kansas City, Mo., on April 9 and 10.

It was called to order by Dr. J. H. Thompson, President of the Kansas City Academy of Medicine. The Doctor made a few remarks on the object, aims and necessity of such a Western society and congratulated Kansas City on the honor of having the first meeting, as well as being the prime mover in its formation. He was sure the Society would be a large one, and he thought all Western men engaged in the above specialties should join and assist the work. He introduced Dr. C. Lester Hall, President of the Missouri State Medical Society, who extended a cordial welcome to the Society on behalf of Missouri and Kansas City.

With a few brief words Dr. H. Z. Gill, of Pittsburg, Kan., made response.

The Society then elected the following officers:

President—Dr. Adolf Alt, St. Louis.

Secretary—Dr. Hal Foster, Kansas City.

Treasurer—Dr. W. L. Drayton, Lincoln, Neb.

First Vice-President—Dr. B. E. Fryer, Kansas City.

Second Vice-President—Dr. Wm. C. Pipino, Des Moines.

Third Vice-President—Dr. J. W. Martindale, Minneapolis.

The constitution and by-laws as framed by the committee consisting of Drs. Loeb, Pipino and Dayton, were adopted after some discussion. They made ample provision for the keeping of undesirable elements out of the Society which is open to and invites all medical men engaged in the specialties of eye, ear, nose and throat work, who are of a recognized reputable character.

The papers which were read at this meeting were full of interest and from its beginning this Society may hope for a great and useful future. If there was any clique engineering

things and thereby keeping useful members away, as has been alleged, the writer surely did not become aware of it.

The purely ophthalmological papers read at the meeting were:

"Diabetic Retinitis," by Adolf Alt, M.D.

"Errors in the Literature on Javal's Ophthalmometer for the Measuring of Astigmatism," by G. W. Grove, M.D.

"Which Operation Should a Beginner Select for the Extraction of Senile Cataract," by J. H. Thompson, M.D.

"A Case of Diphtheritic Conjunctivitis," by H. Z. Gill, M.D.

Some fifty members were enrolled and the Society adjourned to meet at St. Louis on the second Thursday and Friday in April, 1897, when we hope to see a large and representative gathering.

DR. KOSTER has been elected Professor on Ophthalmology at the Leyden University, Holland.

THE TWELFTH INTERNATIONAL CONGRESS OF MEDICINE will convene at Moscow, Russia, on August 19, 1897, and last till August 27.

THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE has received a legacy of $500 from the late A. Bernheimer, of New York, and a donation of $5000 from Miss Ch. van den Heuvel.

BLASTOMYCETES IN SARCOMATA.—Roncali (*Il Policlinico*) found in five sarcomata taken from different parts and different tissues, parasitic forms analogous to those described by Sanfelice, and by the author in cases of ovarian adeno-carcinoma. These parasites (that is, those met with in sarcoma) react to specific staining reagents, and resist the action of acids and alkalies in the very same way as the blastomycetes found in adeno-carcinoma. They may be intracellular, extracellular and even (exceptionally) intranuclear; they multiply by budding; in the young state they may be seen without membrane and with abundant chromatic protoplasm; they may be homogeneous or partly granular or degenerate, that is, wanting in protoplasm, or furnished with protoplasm so modified as to lose all property of staining with aniline dye.

BOOKS AND PAMPHLETS.

PAMPHLETS.

"The Prostate." By L. B. Bangs, M.D.

"Sero-Therapy in Tuberculosis." By P. Paquin, M.D.

"Magister Barnabas de Regio." By Giuseppe Albertotti.

"On the Systematology of the Bacteria." By C. Fish, M.D.

"Twenty-Second Annual Report of the Cincinnati Sanitarium."

"Exercise and Food for Pulmonary Invalids." By Ch. Dennison, M.D.

"Mixed Forms of Trachoma and Spring Cataract." By Ch. H. May, M.D.

"The Excretory Origin of Certain Forms of Iritis and Cyclitis." By Sydney Stephenson.

"An Improved Method of Diagnosticating Diabetes From a Drop of Blood." By L. Bremer, M.D.

"A Clinical Study of 354 Cases of Foreign Body Situated on and in the Cornea." By Ch. A. Oliver, M.D.

"The Relation of the General Practitioner to the Eye Patient and the Ophthalmologist." By L. R. Culbertson, M.D.

"The Relative Importance of Labyrinthine and Ocular Defects in the Etiology of Vertigo." By A. A. Boyer, M.D.

"Evisceration of the Eyeball. Permanent Insertion of a Glass Globe in the Place of the Vitreous Body." By A. H. Voorhies, M.D.

"A Brief Résumé of a Comparative Study of the Ophthalmoscopic Conditions Seen in Interstitial Nephritis," etc. By Ch. A. Oliver, M.D.

"History of a Case of Successful Iridectomy and Extraction of Lens Capsule and Lens Débris, with Recovery," etc. By Ch. A. Oliver, M.D.